UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,341	10/31/2003	Gian Paolo Mattellini	944-3.150-1	9660

4955 7590 01/11/2007 WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP BRADFORD GREEN, BUILDING 5 755 MAIN STREET, P O BOX 224 MONROE, CT 06468	**EXAMINER** TRAN, TUAN A

ART UNIT	PAPER NUMBER
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/698,341	MATTELLINI, GIAN PAOLO
	Examiner	Art Unit	
	Tuan A. Tran	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/27/06*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Frain et al. (EP 0701334).

Regarding claims 1 and 5, Frain discloses an apparatus (radio receivers of radio

base station and subscriber equipment) and method (See fig. 6 and page 7 lines 20-21)

by which the radio receiver, in receiving a signal transmitted over a radio channel,

estimates the impulse response of the radio channel based on a received training

sequence RX_C included in the received signal, the method including a step of

performing a plurality of correlations (CORRN, CORR 1, CORR2) using a correlation

sequence derived from the received training sequence RX_C with a replica REF of the

transmitted correlation sequence (See figs. 3, 5 and page 3 lines 20-39, page 4 lines 5-

27). However, Frain does not explicitly mention that the correlation sequence is

calculated based on averaging symbols of the received training sequence. Since Frain

does suggest the received training sequence is a set of symbols (0 and 1) (See fig. 4)

and the correlation sequence is selected as the subset of symbols (0 and 1) of the

training sequence, and further averaging symbols is known in the art as one simple way of numerous ways in mathematic to determine a norm of a list of symbols; therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to derive the correlation sequence by averaging symbols of the received training sequence for the advantage of giving the user more flexibility in computing the channel impulse response.

Claims 3 and 7 are rejected for the same reasons as set forth in claim 1, as apparatus.

Regarding claims 2 and 6, Frain discloses an apparatus (radio receivers of radio base station and subscriber equipment) and method (See fig. 6 and page 7lines 20-21) for estimating the impulse response of a radio channel by which the radio receiver receives a received signal including a received training sequence RX_C for which the radio receiver knows a corresponding replica training sequence REF, the received training sequence RX_C including a correlation sequence having a first end and a second end, and also including an additional part at the second end, with the additional part the same as a corresponding portion of the correlation sequence at the first end of the received correlation sequence (See fig. 3), and likewise for the replica training sequence REF so that it includes a replica correlation sequence, the method characterized by: a) deriving a correlation sequence; and b) a correlating step, responsive to the derived correlation sequence, of performing a set of correlations (CORRN, CORR1, CORR2) of the derived correlation sequence with the replica training sequence REF, the set of correlations including a first correlation CORR1 in which the

derived correlation sequence is aligned with the replica correlation sequence and
including subsequent correlations performed with the derived correlation sequence
shifted for each next correlation by one or more symbols from the position in the
immediately preceding correlation, so as to provide information useful in estimating the
channel impulse response (See fig. 5 and page 4 lines 5-27). However, Frain doe not
mention that correlation sequence is calculated based on averaging symbols averaging
a predetermined number of symbols from the first end of the received correlation
sequence with a predetermined number of symbols from the additional part at the
second end of the received training sequence. Since Frain does suggest the received
training sequence is a set of symbols (0 and 1) (See fig. 4) and the correlation
sequence is selected as the subset of symbols (0 and 1) of the training sequence, and
further it is known in the art that averaging symbols is one simple way of numerous
ways in mathematic to determine a norm of a list of symbols as well as there are
numerous ways to select an subset of a list of symbols; therefore, it would have been
obvious to one of ordinary skill in the art at the time the invention was made to derive
the correlation sequence by averaging symbols of the subset comprising a
predetermined number of symbols from the first end of the received correlation
sequence with a predetermined number of symbols from the additional part at the
second end of the received training sequence for the advantage of giving the user more
flexibility in computing the channel impulse response.

Claims 4 and 8-16 are rejected for the same reasons as set forth in claim 2, as
apparatus.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Okanoue (6,738,375); Piirainen (6,473,594); Suonvieri (6,259,919); Brunner (6,301,470); Katz (6,321,066); Chiodini (5,949,794); Piirainen (6,144,709); Meyer (6,002,716); Katz (6,289,005).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Tran whose telephone number is (571) 272-7858. The examiner can normally be reached on Mon-Fri, 10:00AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tuan Tran